SCHEDULED CLOSURE PLAN

US ECOLOGY NEVADA

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SECTION 15

SECHULED CLOSURE PLAN

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SECTION 15

SCHEDULED CLOSURE PLAN

This Scheduled Closure Plan has been prepared by US Ecology Nevada (USEN) to comply with the requirements of 40 CFR §§264.111, 264.112 (a) to (c) and 40 CFR §270.14 (b)(13), as adopted by the Nevada Division of Environmental Protection (NvDEP). This plan describes the procedures USEN will follow to perform a scheduled partial and/or final closure at any point during the active life of the facility. Scheduled final closure is a planned activity and is expected to take place as part of normal operation after all the disposal cells are full.

USEN will implement this plan for the following existing units at time of closure:

- Hazardous Waste Land Disposal Trench 11 and Trench 12
- Polychlorinated Biphenyl (PCB) Process Building
- Batch Stabilization Units
- Truck Parking Storage Area
- Evaporation Pad
- Dry Hazardous Waste Storage Areas 1 and 2
- Container Management Building
- Low Temperature Thermal Desorption (LTTD) Units

15.1.0 CLOSURE PERFORMANCE STANDARD

Closure:

- Minimizes the need for further maintenance,
- Minimizes the potential for post-closure escape of hazardous waste or constituents to the surrounding environment, and
- Complies with the closure requirements in 40 CFR Part 264 for each unit.

15.2.0 PARTIAL CLOSURE

Closure of certain hazardous waste management units may be necessary prior to final closure of the entire facility. Circumstances that may prompt partial closure are:

- Modifications to facility operations, such as the completion of filling in Trench 11.
- Replacement of units beyond useful service life
- Unanticipated failure of units/structures

Partial closure of any unit will be completed within 180 days after final receipt of hazardous waste in that unit following the same procedures described for final closure with regards to removal of waste and residues, unit decontamination, dismantling and disposal.

If partial closure is required for the landfill cell, USEN will notify the NvDEP Administrator at least 60 days prior to beginning closure.

15.3.0 MAXIMUM WASTE INVENTORY

The maximum inventory of hazardous waste expected to be at the facility at any time over the active life of the facility is identified in Table 15-1. This maximum was derived by reviewing historical inventory records and projecting the historical maximum percentage for permitted and proposed unit inventories. However, waste inventory at a time of scheduled closure should be minimal. As the final disposal cell approaches capacity, waste receipts will decrease to match the remaining volume. The only waste requiring off-site disposal after all units are closed should be that generated during closure.

15.4.0 SCHEDULE FOR CLOSURE

A closure schedule with the projected activities and required closure time are included in Table 15-2.

15.4.1 Time Allowed for Closure

Closure activities are expected to begin no later than 180 days after receiving the final volume of hazardous waste at the facility (or at the individual unit when partial closure is anticipated). Should additional time be necessary, USEN will submit a permit modification requesting a longer period.

Within 90 days after receiving the final volume of hazardous waste, waste inventory in storage or treatment units will be treated on site and disposed of in the landfill, or removed for off-site disposal. The units will be dismantled and disposed of or decontaminated, in accordance with the procedures described in Section 7.5 and 8.0. Remaining portions of the landfill will be backfilled and a final cover placed as described in Section 7.1.

Closure activities will be completed within 180 days from the start of closure activities.

15.4.2 Closure Time Extension

If treatment, removal or disposal of the final volume of hazardous waste and completion of closure activities require a longer time, USEN may request modification of the approved closure plan, or otherwise petition the NvDEP for approval of a closure time extension. The extension request will include a demonstration that:

- Closure activities require longer than the 90 or 180 days allowed,
- The unit has capacity to receive additional waste,

- There is a reasonable likelihood that a party other than US Ecology will commence operation of the facility within one year, or
- Closure will interfere with continued operation.

15.5.0 AMENDMENTS TO SCHEDULED CLOSURE PLAN

USEN will submit a written request to the NvDEP for a modification of the approved Scheduled Closure Plan, as necessary, whenever the following occurs:

- Changes in operating plans or facility design materially affect the Scheduled Closure Plan
- In conducting partial or final closure activities, unexpected events require a modification to the approved Scheduled Closure Plan.

15.6.0 CERTIFICATION OF CLOSURE

USEN will submit a certification of closure to the NvDEP Administrator within 60 days of completion of partial closure activities of any of the land disposal cells, or completion of scheduled final closure. USEN will certify that the hazardous waste management unit or facility, as applicable, was closed in accordance with the specifications of the approved Scheduled Closure Plan. The certification will be signed by a company representative and by an independent professional engineer registered in the State of Nevada.

15.7.0 CLOSURE PROCEDURES

15.7.1 Closure of Landfill

Below-grade available space, except for the volume required for disposal of on-site waste and other items, will be backfilled with soil from the site's soil stockpile. Any above-grade waste will be contained by constructed dikes and soil backfill, as necessary.

When waste and backfill within the above-grade disposal facility reach an elevation within approximately three feet below the designed top of waste elevation, final waste placement operations will begin. At that time, waste and backfill will be mounded toward the middle of the above-grade area to the design maximum waste elevations. When the final waste slopes have been established, the final cover will be installed. This cover will consist of a layered soil system.

Once the slopes for waste and backfill are established, a final cover system will be placed over the landfill. It is assumed that the contractor will install the approved cover system, and will follow the specified quality assurance and quality control procedures.

Control of percolation into the closed trench will be provided by constructing a cover that holds infiltrated water in the evaporative zone of the cover until it is returned to the atmosphere. The cover virtually eliminates percolation into the trench.

The final landfill covers for USEN Trenches 11 and 12 satisfy the regulatory requirements for final closure of a landfill cell and are fully consistent with the provisions of 40 CFR 264.110, the performance standards of 40 CFR 264.111, and the following requirements of 40 CFR 264.310(a) dealing with landfill closure:

- Provide long-term minimization of migration of liquids through the closed landfill;
- Function with minimum maintenance;
- Promote drainage and minimize erosion or abrasion of the cover; and
- Accommodate settling and subsidence so that cover's integrity is maintained.

15.7.2 Evaporative Cover Characteristics

The cover is appropriate for an arid region, and uses the moisture retention properties of native soils to contain and store infiltrating moisture (precipitation) until the natural processes of evaporation and plant transpiration remove the stored moisture and release it the atmosphere. The cover is protective of human health and the environment, and offers long-term benefits when compared to conventional landfill cover types that incorporate compacted clay or synthetic materials as low-permeability components. These benefits include, but are not limited to:

- use of easily obtained construction materials,
- relative simplicity of construction,
- reduced complexity of quality assurance/quality control programs, and
- increased long-term cover integrity and stability.

From bottom to top, the components of the arid region cover to be used for Trenches 11 and 12 are as follows.

- **Interim Cover Soil Layer**. The lower layer of the final cover is a lightly compacted native soil layer at least 12-inches (1.0 foot) thick and extending across the cover to the natural ground surface on all sides of the trenches.

- **Final Cover Soil Layer**. The upper layer of the final cover is a lightly compacted soil layer at least 24-inches (2.0 feet) thick and extending across the cover to the natural ground surface on all sides of the trenches. In conjunction with the Interim Cover Layer, it retards the downward movement of infiltrating water by providing temporary water-storage, and allowing stored water to be returned to the atmosphere by evaporation and plant transpiration.

Mathematical models predicted that a three-feet (36-inch) thick monolithic cover will prevent significant percolation of fluids through the cover and into waste. The results also indicate that nearly all of the precipitation that enters returns to the atmosphere through the combination of evaporation and transpiration rather than infiltrating deeply into the cover and percolating into waste. These results likely are conservative because no vegetation was considered in the models, so the evaluation of "evapotranspiration"(the combined effect of evaporation and plant transpiration) actually was limited to consideration of evaporation only.

15.7.3 Evaporative Cover Specifications

Compacted-soil starter berms will serve as the outer shell of the above-grade waste disposal area for Trenches 11 and 12. The starter berms on the perimeter of Trench 11 were constructed previously in accordance with NDEP approval of the 1999 design and plan for above-grade waste disposal. The Trench 12 berms will be constructed of compacted native soil or compacted select soil waste (where the berm is over waste). Suitable materials will be placed in lifts not exceeding 12 inches thick and compacted to 95 percent maximum dry density (ASTM D 1557). In-situ density tests will be performed as specified in the CQA Plan.

Soil materials for final cover construction will consist of natural soil obtained from USEN stockpiles and the Trench 12 excavation, supplemented as needed with imported soil materials. Native and imported materials will be screened and mixed, as needed, to obtain material of satisfactory grain size.

The Trench 11 interim soil layer has been constructed as a layer at least 12 inches thick constructed during the trench's waste disposal operations history. The Trench 12 interim soil layer will be a layer not less than 12 inches thick that is comprised of natural soil materials that contain no grain sizes larger than 6.0 inches. Lift thickness will be measured and documented, but there is no compaction specification for this material, which will be placed as above-grade waste disposal proceeds.

Soil materials for the Trench 11 and 12 final cover layer will be 90 percent smaller than 1.0 inch with not less than 5.0 percent passing the #200 sieve. No materials in this layer will be larger than 3.0 inches. Cover materials will be placed in lifts that between 12 and 24 inches thick and lightly compacted to achieve a density of about 80 percent MDD (ASTM D 1557).

The lower density compaction requirement of the soil cover is important for the moisture holding capacity of the soil. Over-compaction could lead to reduced effectiveness and should be prevented. Areas of the final cover layer that become overly compacted, such as could result from repeated vehicle or equipment passage, will be loosened by shallow ripping or disking.

15.7.4 Post Closure Performance Verification

Verification of post-closure performance of the final cover will be provided by the combination of leachate monitoring (quality and quantity), basin lysimeter monitoring and groundwater monitoring.

Leachate monitoring will use existing Trench 11 and Trench 12 sumps to remove leachate from the landfill units. Records of leachate removal will be tabulated and evaluated to determine whether leachate production rates decline following facility closure.

Basin Lysimeters will be constructed underneath the evaporative cover to verify that infiltration of moisture does not reach beneath the landfill cover.

Closure of the above-grade disposal facility will be considered complete when the final design slopes have been established on the cover. Post-closure inspection and maintenance will be performed in the same manner as for other closed landfill units at the facility. With the design features presented in this report, it is expected that the above-grade disposal facility will provide long-term, maintenance-free protection to the environment.

Construction of the final cover will be conducted in accordance with cell specifications included in the Landfill Report of the Permit Renewal Application. A detailed evaluation of the proposed final cover performance is presented in the following reports, which have been previously presented to the NDEP, and are included herein by reference.

- The design of the proposed final cover is described in detail in the *Trench 11 Above-Grade Disposal Facility Design and Construction Quality Assurance Plan*, revised May 6, 1999, by AquAeTer, Inc.

- *Erosion Calculations for Above Grade Disposal Cell*, dated July 28, 1987, prepared by Dr. James L. Grant and Associates.

- *Cell 10 Cap Design Analysis Using Wind Erosion Equation* prepared by US Ecology in March 1991.
- *Supplement – Landfill Report for Trench 12, October 2007,* AquAeTer, Inc.
- *Design Basis and Construction Specifications for Trenches 11 and 12 Final Covers, April 2008,* AquAeTer, Inc.

The soil cover data in the above referenced reports is applicable to the cover design for Trenches 11 and 12.

15.7.5 Closure of Treatment and Storage Units

For purposes of the closure procedures discussion, treatment and storage units are grouped according to their location, as follows:

- PCB Processing Building
- Truck Parking Storage Area
- Batch Stabilization Units
- Evaporation Pad
- Dry Hazardous Waste Storage Areas
- Container Management Building
- Low Temperature Thermal Desorption (LTTD) Unit

15.7.5.1 PCB Processing Building and RCRA Storage Area (CMU #1)

All liquid PCBs in storage at the time of an unscheduled closure will be transported to a Toxic Substance Control Act (TSCA) authorized disposal facility. All RCRA waste inventory in storage will be treated as needed and disposed of on site, or transported to a RCRA-authorized off-site facility for treatment and/or disposal.

The steel building walls and any contaminated equipment will be decontaminated, or washed, dismantled and disposed of in the PCB portion of the landfill cell. If structure removal is selected, the entire PCB Pad, including the building's concrete floor and underlying liner system, will be excavated and disposed of in the

PCB portion of the landfill. The concrete floor of the building will be broken up into manageable pieces using appropriate equipment. The containment system drainage material will be removed and transferred to the PCB portion of the disposal unit. The underlying liner system will be cut and folded for disposal in the landfill cell.

Four samples will be obtained from the soil underlying the containment system to demonstrate clean closure. Sample locations will be selected in areas with the highest probability for contamination (i.e., areas where visual inspection of the liner indicates possible deterioration). If no deterioration is evident, sample locations will be picked at random. Samples will be analyzed for the parameters specified in Table 3 following U.S. Environmental Protection Agency SW-846 methods, and the results statistically compared to background concentrations. Samples where background concentrations are obtained within a statistically acceptable margin will be considered to have met the clean closure performance standard. Soil removal will be initiated should any of the samples indicate a statistically significant increase over background values for any constituent. Soil removal will be conducted in three-inch increments followed by confirmatory testing until clean closure is obtained. Additional testing will be limited to those constituents exceeding background concentrations.

If the decontamination option is selected, decontamination of the unit will follow the procedures described in Section 8.0, as applicable. Number 2 diesel fuel or other appropriate PCB solvent will be used as the decontamination agent. Wash waters generated from decontamination activities will be removed for off-site disposal at an authorized facility.

15.7.5.2 Truck Parking Storage Area (CMU #7)

Waste inventory in the Truck Parking Storage area will be treated and disposed of on-site, or transported to a RCRA-authorized hazardous waste management facility. The concrete pad will be decontaminated and left in place, or removed to the disposal cell.

If removal of the pad is determined necessary, the procedures described in Section 7.2.1 will be followed for removal of the concrete pad, removal of contaminated soil (if any) and demonstration of clean closure.

15.7.5.3 Batch Stabilization Units (T1-T3, T-18 & T-19)

Waste inventory in the stabilization units will be treated and placed in the on-site landfill cell or transported to an authorized off-site facility for treatment and/or disposal.

The stabilization vessels will be decontaminated, or washed, dismantled and placed in the on-site disposal cell. The concrete silo foundation will be removed for off-site treatment and disposal. The procedures described in Section 7.2.1 will be followed for removal of the foundation, containment system, and any contaminated soil, and demonstration of clean closure.

15.7.5.4 Evaporation Pad (T-11)

Liquid waste inventory in the unit will be removed and sent off site to an authorized disposal facility. Should partial closure be necessary for this unit, the waste inventory will be removed and solidified/stabilization in the Batch Stabilization Unit.

The concrete pad will be removed for off-site treatment and disposal. The procedure described in Section 7.2.1 will be followed for removal of the liner system, removal of contaminated soil (if any), and demonstration of clean closure.

15.7.5.5 Dry Hazardous Waste Storage Areas 1 and 2 (CMU #5 & CMU#6)

Waste inventory in the Dry Hazardous Waste Storage Area will be treated and disposed of on site, or transported to a RCRA-authorized hazardous waste management facility. The pad area will be excavated and removed to the disposal cell.

The procedures described in Section 7.2.1 will be followed for removal of contaminated soil (if any) and demonstration of clean closure.

15.7.5.6 Container Management Building (CMU #16)

All wastes in storage at the time of a scheduled closure will be treated and disposed onsite or transported to an appropriately authorized TSDF.

The steel building walls and any contaminated equipment will be decontaminated, dismantled and disposed of in the appropriately permitted landfill cell. If structure removal is required, the entire building including the floor shall be excavated and disposed of as described above.

Samples will be obtained from the soil underlying the containment system to demonstrate clean closure. Sample locations will be selected in areas with the highest probability for contamination (i.e., areas where treatment tanks were situated). If no deterioration to the floor or tank system is evident, sample locations will be picked at random. Samples will be analyzed for the parameters specified in Table 15-3 following U.S. Environmental Protection Agency SW-846 methods, and the results statistically compared to background concentrations. Samples where background concentrations are obtained within a statistically acceptable margin will be considered to have met the clean closure performance standard. Soil removal will be initiated should any of the samples indicate a statistically significant increase over background values for any constituent. Additional testing will be limited to those constituents exceeding background concentrations.

If the decontamination option is selected, decontamination of the unit will follow the procedures described in Section 15.8.0, as applicable.

Waste inventory in the stabilization units will be treated and placed in the on-site landfill cell or transported to an authorized off-site facility for treatment and/or disposal.

The stabilization vessels will be decontaminated, or washed, dismantled and placed in the on-site disposal cell. The procedures described in this section will be followed for removal of the foundation, containment system, and any contaminated soil, and demonstration of clean closure.

15.7.5.7 Low Temperature Thermal Desorption (LTTD) Unit

Waste inventory in the LTTD Unit will be treated and disposed of on site, or transported to a RCRA-authorized hazardous waste management facility.

The unit and associated containers will be decontaminated following the procedures described in Section 8.0, or washed, dismantled and properly disposed of in the landfill should decontamination be determined economically unfeasible or physically impossible. If removal of the concrete pad is determined necessary, the procedures described in Section 7.5.1 will be followed for removal of the concrete pad, removal of contaminated soil (if any) and demonstration of clean closure.

15.8.0 DECONTAMINATION OF EQUIPMENT AND STRUCTURES

At the time of closure, US Ecology will evaluate the economic feasibility of conducting clean closure of treatment/storage units and structures. In addition to the economic feasibility of decontamination, US Ecology will evaluate the condition of each unit or structure to determine the presence of significantly deteriorated areas, which could dictate the need for unit removal and disposal. Should the decontamination option be selected, the following steps will be taken.

1. The interior surfaces of piping, valves, pumps and other ancillary equipment associated with tank systems will be cleaned by flushing with a detergent wash and rinsing with tap water. If the facility determines that a detergent wash is not adequate, other appropriate decontamination methods may be employed (e.g., solvent wash, steam cleaning). Wash waters will be drained to the tank for subsequent removal.

2. Interior tank surfaces will be pressure washed using water and cleaning agents followed by triple rinsing with tap water. Wash waters will be collected from the bottom of the tank and removed using vacuum equipment or by pumping to a tanker truck for off-site disposal.

3. Tank surfaces will be visually inspected to determine whether residues have been completely removed. If residues are visually detected, Step 2 will be repeated.

4. Concrete floors and structures will be cleaned with an industrial floor scrubber. The floors will be pressure washed and triple rinsed. The entire surface will be visually inspected to ensure removal of visually detectable residues. Wash waters generated during decontamination will be removed with vacuum equipment or by pumping to a container or tanker truck for off-site disposal.

5. Following decontamination and visual inspection of all tanks and structures, a final rinse with clean tap water will be performed. Decontamination will be verified by collecting and submitting one rinsate sample from each unit/structure for analysis. Sampling and analysis will be conducted following

procedures recommended by the version of EPA SW-846 that is applicable at the time of closure. Decontamination verification samples will be analyzed for the parameters identified in Table 3.

6. Heavy equipment and unloading docks used for handling waste shall be cleaned with a high-pressure water cleaner until all visible contamination has been removed. If such cleaning is physically impossible or economically unfeasible, the equipment or applicable parts thereof will be properly disposed of in the landfill cell.

Decontamination rinse water will be statistically compared to a background sample of tap water. If statistically significant parameters are detected in the rinse water, the decontamination steps described above will be repeated until the statistical comparison is met.

15.9.0 GROUNDWATER MONITORING

At least one groundwater monitoring event will take place during the closure period. Groundwater monitoring will be conducted following the same procedures observed during operations just prior to the time of the scheduled closure.

15.10.0 LEACHATE COLLECTION

The leachate generated during the closure period will be transported to an off-site disposal facility.

15.11.0 RUN-ON AND RUN-OFF CONTROLS

The existing perimeter ditches around the facility will continue to provide run-on protection during the closure period. Run-off control mechanisms in place during the active life will remain in place throughout the closure period. Rainfall coming in contact with waste in the active cell will be collected in the cell and treated as leachate. Rainfall contacting capped portions of the cell will be considered clean and allowed to run off into natural drainage courses.

TABLE 15-1 - Estimate Of Maximum Waste Inventory

UNIT DESCRIPTION	AMOUNT * (Expressed as Percentage of Total Design Capacity)	WASTE TYPE
PCBS Tanks (T4 – T10)	90%	PCB Liquids
Leachate Storage Tank (T-15)	65%	Landfill Leachate (F039)
Truck Parking Pad (CMU #7)	100%	Stabilization Waste
Dry Hazardous Waste Storage Area (CMU # 5 and CMU #6)	100%	Stabilization Waste and Thermal Desorption Waste
PCB Building (CMU #1)	90%	RCRA Waste and PCB Materials
Evaporation Pad (T-11)	100%	Wastewater and Sludge
Batch Stabilization Units (T-1, 2, 3, 18 & 19)	100%	RCRA Liquids, Sludges or Solids Amenable to Stabilization

* Based on historical inventory records

TABLE 15-2 - Estimated Schedule For Closure At Us Ecology Facility	
TASK	**ESTIMATED TIME PERIOD**
Final Waste Receipt	Day 0
Notification of Intent to Close	Day 30
Begin construction of lysimter in closed landfill.	Day 60
Complete Treatment or Disposal of Waste Inventory	Day 90
Complete Closure of Treatment and Storage Units	
* Truck Parking Area (CMU #7)	Day 101
* Dry Hazardous Waste Storage Area (CMU #5 and CMU #6)	Day 123
* PCB Building (CMU #1)	Day 134
* Batch Stabilization Units (T-1, 2, 3, 18, 19)	Day 152
* Evaporation Pad (T-11)	Day 170
Complete Installation of Lysimeter	Day 180
Complete Closure of Landfill	Day 180
Final Inspection and Certification of Compliance with Closure	
Plan by Registered Professional Engineer (P.E.)	Day 240
* Note: Schedule only applies to units in existence at time of closure.	

TABLE 15-3 - Clean Closure Demonstration Parameters	
UNIT	**PARAMETERS**
PCB Processing Building (CMU #1)	PCBs, VOCs and Eight RCRA Metals
Batch Stabilization Units (T-1, 2, 3, 18, 19)	VOCs and Eight RCRA Metals
Evaporation Pad (T-11)	VOCs and Eight RCRA Metals
Dry Hazardous Waste Storage Areas 1 and 2 (CMU #5 & 6)	Eight RCRA Metals
Container Management Building (CMU #16)	VOCs and Eight RCRA Metals
Low Temperature Thermal Desorption Unit	VOCs and Eight RCRA Metals

APPENDIX 15-A

CLOSURE COST ESTIMATE

2009 Scheduled Closure Cost

ITEM NO.	ITEM	2008 Total	2009 Inflation Adjusted Rate	2009 Total
1A	Trench 11 - Scheduled (with alternate cap)	$400,000	1.0203	$408,120.00
1C	Trench 12 - Scheduled (with alternate cap)	$130,000	1.0203	$132,639.00
2	PCB Processing Building & RCRA Storage Area	$334,195	1.0203	$340,979.44
3	Truck Parking Storage Area	$135,568	1.0203	$138,320.31
4	Truck Wash and Evaporation Pad	$39,472	1.0203	$40,273.33
5	"Terminator" Stabilization unit - Closed		1.0203	$0.00
6	Corrective Action	$209,000	1.0203	$213,242.70
7	Proposed Tank Farm - Never built		1.0203	$0.00
8	Stabilization/Containment Building - Never Built		1.0203	$0.00
9	Batch Stabilization Tanks	$224,316	1.0203	$228,869.19
10	RCRA Container Storage - Never Built		1.0203	$0.00
11	Decontamination-Contractors large Equipment	$8,291	1.0203	$8,459.32
12	Personal Protective Equipment	$7,498	1.0203	$7,649.90
13	Groundwater Monitoring	$64,160	1.0203	$65,462.45
14	Closure Certification	$16,150	1.0203	$16,477.85
15	Waste Consolidation Area - Closed		1.0203	$0.00
16	Low Temperature Thermal Desorption Unit	$37,014	1.0203	$37,765.12
17	Dry Hazardous Waste Storage Area	$1,049,970	1.0203	$1,071,284.42
18	Container Mangement Building	$1,023,661	1.0203	$1,044,441.63
	Management Oversight	$294,344	1.0203	$300,318.77
	TOTAL FACILITY CLOSURE COST ESTIMATE	**$3,973,639**		**$4,054,303**

Note: Item 7 and 8 were intentionally omitted

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Cost Estimating Web Site

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Gross Domestic Product Deflator Inflation Calculator

GDP Deflator

Cost:	1	
From:	2008 est.	fiscal year
To:	2009 est.	fiscal year
Inflation Index:	1.0203	
% Change:	2	
Inflated Cost:	1.0203	

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This is an inflation calculator for adjusting costs from one year to another using the Gross Domestic Product (GDP) Deflator inflation index. This inflation calculator is based on the inflation rate during the US Government Fiscal Year, which begins on October 1 and ends on September 30. This inflation calculator will compute inflation from 1940 to 2009.

Note. These models are provided as educational examples of technology developed and used by cost engineers. Use at your own risk. These tools are written in JavaScript and require a browser with JavaScript capability. If you have trouble viewing or using these tools, please consult the frequently asked questions.

Source: Budget of the United States Government, Fiscal Year 2005, Historical Tables.

Table 10.1 — Gross Domestic Product and Deflators Used in the Historical Tables- 1940–2009

See also:

- Consumer Price Index
- Employment Cost Index
- GDP Deflator
- Import Price Index
- NASA New Start Index
- Producer Price Index

BEATTY FACILITY DETAILED COST ESTIMATE
SCHEDULED CLOSURE, WITH ABOVE GRADE WASTE

ITEM NO.	ITEM	UNIT	2008 Unit Cost	UNIT COST REF	QUANTITY	COST TOTAL
1A - Trench 11 Scheduled Closure						
	COVER					
	Backfill - Intermediate Cap Layer (1 ft thick)	CY	$ 4.63	19C and 19D	0	$ -
	Backfill - Surficial Cap Layer (2 ft thick)	CY	$ 4.63	19C and 19D	67,190	$ 311,246
1	Final Grading of Cover	MSF	23.265	67	907	$ 21,097
	Partial Subtotal 1					**$ 332,342**
	QA/QC for Cap	MSF	$ 25	65	907	$ 22,670
	Subtotal 1					**$ 355,012**
	LEACHATE COLLECTION SYSTEM					
	Pipe for Riser Extension - West Phase	LF	$ 91.77	21	0	$ -
	Labor of Riser Extension - West Phase	Hr	$ 65.00	40E	10	$ 650
	Leachate Disposal	Gal	$ 0.96	28	15,000	$ 14,445
2	Transportation	Load	$ 1,800.00	32	3	$ 5,400
	Labor (Monitor & Pump Sumps)	Hour	$ 65.00	40E	36	$ 2,340
	Leachate Analysis - Monthly -VOAs and PCBs	Analy.	$ 240.00	36	3	$ 720
	Leachate Analysis - Quarterly - Permit Parameters	Analy.	$ 1,000.00	35B	1	$ 1,000
	Subtotal 2					**$24,555**
	Subtotal Cost of Landfill Closure					$ 380,000
	Engineering and Design (5%)					$19,000
Total Cost of Landfill Closure						**$ 400,000**

BEATTY FACILITY DETAILED COST ESTIMATE
SCHEDULED CLOSURE, WITH ABOVE GRADE WASTE OF TRENCH 12

ITEM NO.	ITEM	UNIT	2008 Unit Cost	UNIT COST REF	QUANTITY	COST TOTAL
1C- Trench 12 Scheduled Closure						
1	*COVER*					
	Backfill - Surficial Cap Layer (2 ft thick)	CY	$ 4.63	19C and 19D	21,925	$ 101,564
	Final Grading of Cover	MSF	$ 23.27	67	296	$ 6,891
	Partial Subtotal 1					**$ 108,455**
	QA/QC for Cap	MSF	$ 25	65	296	$ 7,405
	Subtotal 2					**$ 115,860**
2	*LEACHATE COLLECTION SYSTEM*					
	Leachate Disposal	Gal	$ 0.96	28	5,000	$ 4,815
	Transportation	Load	$ 1,800.00	32	1	$ 1,800
	Labor (Monitor & Pump Sumps)	Hour	$ 65.00	40E	12	$ 780
	Leachate Analysis - Monthly -VOAs and PCBs	Analy.	$ 240.00	36	1	$ 240
	Leachate Analysis - Quarterly - Permit Parameters	Analy.	$ 1,000.00	35B	1	$ 1,000
	Subtotal 2					**$ 8,635**
	Subtotal Cost of Landfill Closure					$ 124,495
	Engineering and Design (5%)					$6,225
Total Cost of Landfill Closure						**$ 130,000**

ITEM NO.	ITEM	UNIT	UNIT COST	UNIT COST REF	QUANTITY	COST TOTAL
2 - PCB Processing Building & RCRA Storage Area						
	WASTE INVENTORY DISPOSAL COST					
1	Liquid PCB Waste (1,310 drums)	Lb	$ 0.26	29	605,220	$157,357
	Transport Liquid PCB Waste Offsite	Load	$ 5,705.05	31	15	$85,576
	Solid PCB Waste (562 drums) - Dispose in Cell	CY	$ -	n/a	153	$0
	Labor - Hand load liquid PCB waste	CY	$ 44.98	3	356	$16,013
	Load and haul solid PCB drums to cell	CY	$ 20.17	4,5	153	$3,087
	Subtotal 1					**$262,032**
	PCB BUILDING - SHELL					
2	Demolish	Day	$ 4,634.08	26	2	$9,268
	Load and transport to cell	CY	$ 20.17	4,5	12.10	$244
	Subtotal 2					**$9,512**
	PCB BUILDING - SLAB					
3	Demolish (slab 6 " thick)	SF	$ 7.29	6	4,653	$33,919
	Dispose on site	CY	$ 9.10	10	86.17	$784
	Dispose of Rinsate	Lb	$ 0.26	29	11,199	$2,912
	Transportation	Load	$ 5,705.05	31	1	$5,705
	Labor & Equipment Rental	SF	$ 0.87	2	4,653	$4,041
	Subtotal 3					**$47,361**
	PCB BUILDING - FOUNDATION SOILS					
4	Excavate top 3 layers of foundation soil & load	CY	$ 15.51	15A	277.80	$4,309
	Haul to cell	CY	$ 4.58	19	277.80	$1,272
	Analytical (Foundation Soil, PCBs)	Each	$ 90.00	47	4	$360
	Subtotal 4					**$5,941**
	PCB BUILDING - SYNTHETIC LINERS					
5	Labor - Inspect secondary liner	Hour	$ 110.00	40D	2	$220
	Hand excavation to prepare liner for inspection	CY	$ 97.20	14	92.60	$9,000
	Load and haul to cell	CY	$ 45.82	3,5	2.80	$128
	Subtotal 5					**$9,349**
Total Cost of PCB Processing and RCRA Storage Area Closure						**$334,195**

ITEM NO.	ITEM	UNIT	UNIT COST	UNIT COST REF	QUANTITY	COST TOTAL
3 - TRUCK PARKING STORAGE AREA						
	WASTE INVENTORY					
1	Stabilization/Disposal of solid waste offsite	Ton	$ 50.00	48	405	$ 20,250
	Transportation	Load	$ 2,400.00	33	20	$ 48,000
	Subtotal 1					**$ 68,250**
	CONCRETE SLAB					
2	Demolish	SF	$ 7.29	6	7,448	$ 54,294
	Dispose on site	CY	$ 9.10	10	137.90	$ 1,255
	Dispose of Rinsate	Gal	$ 0.96	28	1,986.00	$ 1,913
	Transportation	Load	$ 1,800.00	32	1	$ 1,800
	Labor & Equipment Rental	SF	$ 0.87	2	7,448	$ 6,469
	Subtotal 2					**$ 65,730**
	FOUNDATION SOILS					
3	Excavate foundation soil and load (3 inches)	CY	$ 15.51	15A	69	$ 1,070
	Haul to cell	CY	$ 4.58	19	39	$ 179
	Analytical (Foundation soil, metals)	Each	$ 85.00	45	4	$ 340
	Subtotal 3					**$ 1,588**
Total Truck Parking Area						**$ 135,568**

ITEM NO.	ITEM	UNIT	UNIT COST	UNIT COST REF	QUANTITY	COST TOTAL
4 - TRUCK WASH and EVAPORATION PAD						
1	***WASTE INVENTORY***					
	Dispose offsite	Gal	$ 0.96	28	10,000	$ 9,630
	Transportation	Mile	$ 1,800.00	32	2	$ 3,600
	Subtotal 1					**$ 13,230**
2	***CONCRETE SLAB***					
	Demolish	SF	$ 7.29	6	2,080	$ 15,163
	Treatment/Disposal of Concrete	Ton	$ 50.00	48	78	$ 3,900
	Transportation	Mile	$ 3.88	11	400	$ 1,551
	Subtotal 2					**$ 20,614**
3	***FOUNDATION SOILS***					
	Excavate foundation soil and load	CY	$ 15.51	15A	38.50	$ 597
	Haul to cell	CY	$ 4.58	19	38.50	$ 176
	Analytical (Foundation soil, metals)	Each	$ 85.00	45	4	$ 340
	Analytical (Foundation soil, PCBs)	Each	$ 90.00	47	4	$ 360
	Analytical (Foundation soil, TOC)	Each	$ 45.00	46	4	$ 180
	Subtotal 3					**$ 1,653**
4	***SYNTHETIC LINERS***					
	Labor - Inspect secondary liner	Hr	$ 110.00	40D	2.0	$ 220
	Hand Excavation to prepare liner for inspection	CY	$ 97.20	14	38.52	$ 3,744
	Load and haul to cell	CY	$ 45.82	3,5	0.24	$ 11
	Subtotal 4					**$ 3,975**
Total Truck Wash and Evaporation Pad						**$ 39,472**

ITEM NO.	ITEM	UNIT	UNIT COST	UNIT COST REF	QUANTITY	COST TOTAL
6 - CORRECTIVE ACTION (Install/maintain SVE units for 18 months)						
6A	*SOIL VAPOR EXTRACTION SYSTEM (SVE)*					
	Well(s) Installation	LF	$ 150	68	200	$ 30,000
	Regulators	Each	$ 92	N/A	6	$ 549
	Pressure Gauges	Each	$ 24	N/A	2	$ 49
	Piping	LF	$ 2.44	N/A	150	$ 366
	Pressure Relief Valves	Each	$ 31	N/A	2	$ 61
	Valves	Each	$ 31	N/A	3	$ 92
	Flow Meters	Each	$ 207	N/A	2	$ 415
	Subtotal 6A					$ 31,531
6B	*EQUIPMENT*					
	Blowers	Each	$ 3,050	N/A	2	$ 6,100
	Filter housing	Each	$ 732	N/A	2	$ 1,464
	Piping	Each	$ 2.44	N/A	150	$ 366
	Vapor Phase GAC	Each	$ 6,710	N/A	1	$ 6,710
	Subtotal 6B					$ 14,640
6C	*ELECTRICAL*					
	Material	LS	$ 2,440	N/A	1	$ 2,440
	Subtotal 6C					$ 2,440
6D	*CONTRACTOR CONSULTING SERVICES*					
	Pilot system design review (complete)	Hr		N/A		$ -
	Evaluation of pilot test results (complete)	Hr		N/A		$ -
	Operation system Design	Hr	$ 112	N/A	120	$ 13,469
	Misc.	LS	$ 2,440	N/A	1	$ 2,440
	Subtotal 6D					$ 15,909
6E	*COMPANY LABOR SUPPORT*					
	Project Management	Hr	$ 49	N/A	550	$ 26,840
	License / Permit Specialist - Well head changes/air permit	Hr	$ 43	N/A	240	$ 10,248
	Site Labor - Well head modification for SVE blower	Hr	$ 22	N/A	120	$ 2,635
	Site Labor - Well head modification for AS blower	Hr	$ 22	N/A	80	$ 1,757
	Site Labor - Install and connect power	Hr	$ 22	N/A	160	$ 3,514
	Site Labor - Plumbing and gauges	Hr	$ 22	N/A	80	$ 1,757
	Site Labor - Pollution control equipment installation	Hr	$ 22	N/A	80	$ 1,757
	Subtotal 6E					$ 48,587
6F	*SYSTEM MAINTENANCE/LABOR FOR 18 MONTHS*					
	Blowers	Each	$ 423	N/A	18	$ 7,620
	Filters	Each	$ 305	N/A	18	$ 5,490
	Piping	LF	$ 61	N/A	18	$ 1,098
	Vapor phase GAC	Each	$ 6,710	N/A	2	$ 13,420
	Subtotal 6F					$ 27,628
6G	*LICENSE/PERMIT SAMPLING REQUIREMENTS*					
	Sample Analysis	Each	$ 610	N/A	18	$10,980
	Subtotal 6G					$10,980
6H	*ELECTRICAL*					
	Power requirements	LS	$ 732	N/A	18	$13,176
	Subtotal 6H					$13,176
6I	*COMPANY LABOR SUPPORT FOR O&M PERIOD*					
	Project management	Hr	$ 49	N/A	450	$ 21,960
	Equipment maintenance	Hr	$ 22	N/A	360	$ 7,906
	Sampling	Hr	$ 43	N/A	144	$ 6,149
	Inspection	Hr	$ 22	N/A	72	$ 1,581
	GAC change out	Hr	$ 22	N/A	288	$ 6,324
	Subtotal 6I					$ 43,920
Total Cost for CA - note this is an estimate only - actual costs will not be determined until a CA is selected						$ 209,000

ITEM NO.	ITEM	UNIT	UNIT COST	UNIT COST REF	QUANTITY	Adjusted Cost Total
9 - BATCH STABILIZATION TANKS						
	RCRA WASTE INVENTORY REMOVAL					
1	Stabilization/Disposal of Solid Waste	Ton	$ 50.00	48	213	$ 10,650
	Transport of Solid Waste (Total Miles)	Load	$ 2,400.00	33	32	$ 76,800
	Subtotal 1					$ 87,450
	MIXING VESSELS (1)					
	Cut and Dismantle	LF	$ 2.42	23	3,966	$ 9,596
	Load and Haul to Cell	CY	$ 20.17	4,5	12	$ 242
2	Dispose of Rinsate	Gal	$ 0.96	28	5,760	$ 5,547
	Transportation of Rinsate	Load	$ 1,800.00	32	2	$ 3,600
	Labor & Equipment Rental	Hr	$ 70.79	27	24	$ 1,699
	Subtotal 2					$ 18,985
	CONCRETE SPLASH PAD					
3	Demolish	SF	$ 7.29	6	9,102	$ 66,351
	Dispose on site	CY	$ 9.10	10	168.60	$ 1,534
	Subtotal 3					$ 67,885
	SYNTHETIC LINERS					
4	Labor - Inspect HDPE Liner	Hr	$ 110.00	40D	3.00	$ 330
	Hand excavation to prepare liner for inspection	CY	$ 97.20	14	478.50	$ 46,508
	Load and Haul to cell	CY	$ 45.82	3,5	4.05	$ 186
	Subtotal 4					$ 47,024
	FOUNDATION SOILS					
5	Haul to cell (Excavation included in 4 above)	CY	$ 4.58	19	478.50	$ 2,192
	Analytical (Foundation Soils, Metals)	Each	$ 85.00	45	6	$ 510
	Analytical (Foundation Soils, TOC)	Each	$ 45.00	46	6	$ 270
	Subtotal 5					$ 2,972
Total Batch Stabilization Tank						$ 224,316

ITEM NO.	ITEM	UNIT	UNIT COST	UNIT COST REF	QUANTITY	COST TOTAL
11 - DECONTAMINATION - CONTRACTOR'S LARGE EQUIPMENT						
	DECONTAMINATION - PRESSURE WASHING					
	Labor & Equipment Rental	Hr	$ 70.79	27	21.5	$ 1,522
	Rinsate	Gal	$ 0.96	28	5,160	$ 4,969
	Transport of rinsate (combine one load w/ bldg)	Load	$ 1,800	32	1	$ 1,800
	Total Equipment Decontamination					**$ 8,291**
12 - PERSONAL PROTECTIVE EQUIPMENT						
	Respirators	Each	$ 214.00	53	30	$ 6,420
	Respirators, cartridges, organic vapor	Pkg.	$ 10.30	54	5	$ 52
	Respirators, cartridges, dusts, fumes, mists	Pkg.	$ 12.70	55	5	$ 64
	Tyvek coveralls	Each	$ 8.40	58	100	$ 840
	Shoe covers	Box	$ 25.60	56	3	$ 77
	Disposable Gloves	Box	$ 15.30	57	3	$ 46
	Total Personal Protective Equipment					**$ 7,498**
13 - GROUNDWATER MONITORING						
	Labor	Hr	$ 65.00	40E	64	$ 4,160
	Analysis including shipping	Each	$ 1,000	35A	60	$ 60,000
	Total Groundwater Monitoring					**$ 64,160**
14 - CLOSURE CERTIFICATION						
	Consultant - Principle Engineer	Hr	$ 155.00	40A	40	$ 6,200
	Consultant - Senior Engineer	Hr	$ 115.00	40C	50	$ 5,750
	Consultant - Clerical/Wordprocessing	Hr	$ 55.00	40G	40	$ 2,200
	Consultant - Other Direct Costs (Travel, reproduction, etc.)	Lump Sum	$ 2,000		1	$ 2,000
	Total Closure Certification					**$ 16,150**

ITEM NO.	ITEM	UNIT	UNIT COST	UNIT COST REF	QUANTITY	COST TOTAL
16 - Low Temperature Thermal Desorption Unit						
	WASTE INVENTORY					
1	Stabilization/Disposal of solid waste offsite	Tons	$ 50.00	48	52	$ 2,600
	Transportation	Load	$ 2,400.00	33	3	$ 7,200
	Subtotal 1					**$ 9,800**
	PAD - SOIL/CEMENT, DECONTAMINATION OF STRUCTURES					
2	Excavation of Containment Tank Structure (2,025 square feet, 8" thick base, plus 4 x 45' long x 2' high x 5" thick walls (360 square feet)	CY	$ 15.51	15A	56	$ 869
	Excavation of cement pad (7,150 sq. ft, 6 - 8" depth, 6"-8" thick, average 7" thickness)	CY	$ 15.51	15A	160	$ 2,482
	Dispose on site (LTTD pad and containment tank)	CY	$ 9.10	10	216	$ 1,965
	Excavation of steel/soil pad (5,780 sq. ft, 18" soil above, 6" soil below, 24" total)	CY	$ 15.51	15A	430	$ 6,669
	Dispose on site	CY	$ 9.10	10	430	$ 3,913
	Dispose of Rinsate (LTTD units, concrete pad, etc.)	Gal	$ 0.96	28	4,000	$ 3,852
	Transportation	Load	$ 1,800.00	32	1	$ 1,800
	Labor & Equipment Rental	SF	$ 0.87	2	2,385	$ 2,072
	Subtotal 2					**$ 23,621**
	FOUNDATION SOILS					
3	Excavate foundation soil and load (14,955 sq. ft. 3" depth)	CY	$ 15.51	15A	140	$ 2,171
	Haul to cell	CY	$ 4.58	19	140	$ 641
	Analytical (Foundation soil, metals)	Each	$ 85.00	45	6	$ 510
	Analytical (Foundation soil, TOC)	Each	$ 45.00	46	6	$ 270
	Subtotal 3					**$ 3,593**
Total - Low Temperature Thermal Desorption Unit						**$ 37,014**

ITEM NO.	ITEM	UNIT	UNIT COST	UNIT COST REF	QUANTITY	COST TOTAL
17 - Dry Hazardous Waste Storage Area						
1	***WASTE INVENTORY***					
	Stabilization/Disposal of solid waste offsite	Ton	$ 50.00	48	5,544	$ 277,200
	Transportation	Load	$ 2,400.00	33	277	$ 664,800
	Subtotal 1					$ 942,000
2	***PAD - SOIL/CEMENT, DECONTAMINATION OF STRUCTURES***					
	Excavation of soil/cement pad (75,502 sq. ft, 8"-18" thick, average 12" thickness)	CY	$ 15.51	15A	2,796	$ 43,372
	Dispose on site	CY	$ 9.10	10	2,796	$ 25,445
	Dispose of Rinsate from structures (e.g. dock, lights, etc)	Gal	$ 0.96	28	18,415	$ 17,734
	Transportation	Load	$ 1,800.00	32	4	$ 7,200
	Labor & Equipment Rental	Hr	$ 70.79	27	4	$ 283
	Subtotal 2					$ 94,033
3	***FOUNDATION SOILS***					
	Excavate foundation soil and load (75,502 sq. ft. 3" depth)	CY	$ 15.51	15A	699	$ 10,843
	Haul to cell	CY	$ 2.48	19	699	$ 1,734
	Analytical (Foundation soil, metals)	Each	$ 85.00	45	16	$ 1,360
	Subtotal 3					$13,937
Total - Dry Hazardous Waste Storage Area						**$1,049,970**

ITEM NO.	ITEM	UNIT	UNIT COST	UNIT COST REF	QUANTITY	COST TOTAL
18 - Container Management Building						
	WASTE INVENTORY DISPOSAL COST					
1	Liquid Waste (3251 Drum @ 458.7 lbs each)	Lb	$ 0.26	29	1,491,234	$387,721
	Transport Liquid Waste Offsite	Load	$ 5,705.05	31	36	$205,382
	Solid Waste (3250 drums) - Dispose in Cell	CY	$ -	n/a	885	$0
	Labor - Hand load liquid waste	CY	$ 44.98	3	885	$39,806
	Load and haul solids drums to cell	CY	$ 20.17	4,5	885	$17,853
	Subtotal 1					**$650,762**
	BUILDING - SHELL					
2	Demolish	Day	$ 4,634.08	26	10.9	$50,511
	Load and transport to cell	CY	$ 20.17	4,5	66	$1,330
	Subtotal 2					**$51,842**
	BUILDING - SLAB					
3	Demolish (slab 6" thick)	SF	$ 7.29	6	25,343	$184,743
	Dispose on site	CY	$ 9.10	10	469	$4,270
	Dispose of Rinsate	Lb	$ 0.26	29	61,034.55	$15,869
	Transportation	Load	$ 5,705.05	31	6	$34,230
	Labor & Equipment Rental	Hr	$ 70.79	27	31	$2,160
	Subtotal 3					**$241,273**
	BUILDING - FOUNDATION SOILS					
4	Excavate top 3 layers of foundation soil & load	CY	$ 15.51	15A	1,514	$23,482
	Haul to cell	CY	$ 4.58	19	1,514	$6,935
	Analytical (Foundation Soil, metals)	Each	$ 85.00	45	22	$1,853
	Sutotal 4					**$32,270**
	BUILDING - SYNTHETIC LINERS					
5	Labor - Inspect secondary liner	Hour	$ 110.00	40D	10.90	$1,199
	Hand excavation to prepare liner for inspection	CY	$ 97.20	14	469	$45,616
	Load and haul to cell	CY	$ 45.82	3,5	15.26	$699
	Subtotal 5					**$47,514**
Total Cost of Container Management Closure						**$1,023,661**

Unit Cost Basis
Beatty Facility Closure Estimate and Post Closure Estimate

Ref. No.	Line Number	Page	Unit	Cost per Unit	Cost Index	Unit Price	Description	Crew
1	02 21 13.13 0800	22	L.F.	1.65	1.034	1.71	property lines, perimeter, cleared land	
2	04 01 30.20 2020	77	S.F.	0.84	1.034	0.87	steam cleaning, average	A-7
3	02 41 19.23 3040	36	C.Y.	43.50	1.034	44.98	hand loading truck, 50 foot haul	B-9
4	02 41 19.23 3060	36	C.Y.	18.70	1.034	19.34	machine loading truck	B-16
5	02 41 19.23 5000	36	C.Y.	0.81	1.034	0.84	haul, per mile up to 8 C.Y. truck	B-17
6	02 41 16.17 0440	34	S.F.	7.05	1.034	7.29	concrete floor removal, 6" slab on grade reinforced with steel rods	B-34B
7	02 41 16.17 1140	34	L.F.	23.00	1.034	23.78	concrete footing removal, 2' thick, 3' wide	B-9C
8	02 41 16.17 2600	34	%	10	1.034	10.34	add to 02 41 16.17 1140 for average reinforcing	B-5
9	02 41 16.17 2620	34	%	20	1.034	20.68	add to 02 41 16.17 1140 for heavy reinforcing	NA
10	02 41 16.17 4200	34	C.Y.	8.80	1.034	9.10	add for disposal, on site	NA
11	02 81 20.10 1260	38	Mile	3.75	1.034	3.88	hazardous waste transporation in 25 C.Y. truck, minimum	B-11A
11A	02 81 20.10 1270	38	Mile	6.60	1.034	6.82	hazardous waste transporation in 25 C.Y. truck, maximum	NA
12	31 23 23.14 4420	223	L.C.Y.	2.51	1.034	2.60	backfill, structural, comon earth, 200 H.P., 300' haul	NA
13	31 23 16.50 0400	220	B.C.Y.	4.98	1.034	5.15	excavation, bulk, scrapers, common earth, 5,000' haul	
14	31 23 16.16 0700	215	B.C.Y.	94.00	1.034	97.20	hand excavation, structural, 12' to 18' deep	B-10B
15	31 23 16.16 6090	215	B.C.Y.	11.15	1.034	11.53	machine excavation 1.5 C.Y. bucket, structural, small foundation, sand and gravel	B-33F
15A	31 23 16.16 9024	216	%	15.00	1.034	15.51	add to 31 23 16.16 6090 for loading onto trucks	
16	31 23 23.23 5080	232	E.C.Y.	0.23	1.034	0.24	compaction, riding, vibrating roller, 12" lifts, 2 passes	B-12B
17	31 23 23.23 5020	232	E.C.Y.	0.52	1.034	0.54	compaction, riding, vibrating roller, 6" lifts, 3 passes	NA
18	Category Not Used							B-10Y
19	31 23 23.18 0330	225	L.C.Y.	4.43	1.034	4.58	haul, 1 mile roundtrip, 2.7 loads/hr.	B-10Y
19B	31 23 23.18 1250	225	L.C.Y.	9.20	1.034	9.51	20 CY haul, 10 mile roundtrip, 0.75 loads/hr.	
19C	31.23.23.18 2020	226	L.C.Y.	2.63	1.034	2.72	22 CY haul, 1/2 mile roundtrip, 4.2 loads/hr.	B-34B
19D	31.23.23.17.0020	225	L.C.Y.	1.85	1.034	1.91	spread dump material, no compaction, by dozer	B-34D
20	33 51 13.10 1640	319	L.F.	71	1.034	73.41	polyethylene pipe, 60 PSI, 40' joints, 8" diameter, SDR 11	B-34F
21	33 51 13.10 xxxx		L.F.	88.75	1.034	91.77	estimated value, polyethylene pipe, 60 PSI, 40' joints, 10" diameter, SDR 11	B-10B
22	32 31 13.20 0920	269	L.F.	46.50	1.034	48.08	fence, chain-link, 8', industrial, 6 ga. wire, galvanized steel	B-21A
23	05 05 21.10 0100	94	L.F.	2.34	1.034	2.42	steel cutting, hand burning with torch, up to 1/2" thick	NA
24	33 21 13.10 3100	305	Each	9,125	1.034	9,435.25	pump, 6" submersible, 25' to 500' deep, 30 HP, 100 to 300 GPM	B-80C
25	31 22.16.10 0012	209	DAY	1445.04	1.034	1494.17136	site grading crew and equipment daily rate	E-25
26	02 41 16.13 0500	33	DAY	4481.70	1.034	4634.0778	building demo crew and labor and equipment daily rate	Q-22
27	Crew B-9B	462	Hr	68.46	1.034	70.76764	steam cleaning labor including equipment rental	B-11L
								B-3
								B-9B

Unit Cost Basis
Beatty Facility Closure Estimate and Post Closure Estimate

Ref. No.	Line Number	Page	Unit	Cost per Unit	Cost Index	Unit Price	Description	Crew
28	Site expense: Siemens Water Treatm		GAL	0.96	1.0	0.96	disposal of leachate in Los Angeles, CA	
29	Site expense: Veolia (281) 425-7155		LB	0.26	1.0	0.26	disposal of PCB liquids in Port Arthur, TX	
30	Category Not Used							
31	Site expense: Triad (801) 936-6393		Load	5705.05	1.0	5705.05	transport of liquid PCB to Veolia in Port Arthur - max 5,000 gal. load; Triad Trucking	
32	Site expense: Triad (801) 936-6393		Load	1800	1.0	1800	transport of leachate to Siemens in Los Angeles - max 5,000 gal. load; Triad Trucking	
33	Site expense: Triad (801) 936-6393		Load	2,400	1.0	2400	transport of DWSA waste to USE Grandview, ID	
34	Category Not Used							
35	Category Not Used							
35A	Site expense: AnalySys 512.385.588		Each	1000	1.0	1000	groundwater analysis - groundwater for constituents in Tables 10.4, 10.5, and 10.6 including shipping	
35B	Site expense: AnalySys 512.385.588		Each	1000	1.0	1000	groundwater analysis - groundwater for constituents in Table 10.7 including shipping	
36	Test America (303) 736-0100		Each	240	1.0	240	groundwater analysis (VOAs and PCBs)	
37	Category Not Used							
38	Category Not Used							

Note: All of the above costs include labor, equipment and miscellaneous items unless otherwise noted. All Means costs utilized include overhead and profit.

Unit Cost Basis
Beatty Facility Closure Estimate and Post Closure Estimate

Ref. No.	Line Number	Page	Unit	Cost per Unit	Cost Index	Unit Price	Description	Crew
39	Vector Engineering			NA	1.0	NA	Technical charges - Use Reference 40E for gw sampling Use Reference 40D for liner inspection	
40A	AquAeTer Inc.		Per Hour	155	1.0	155	Technical Director - 2008 Schedule of Rates	
40B	AquAeTer Inc.		Per Hour	125	1.0	125	Project Director - 2008 Schedule of Rates	
40C	AquAeTer Inc.		Per Hour	115	1.0	115	Senior Engineer/Scientist - 2008 Schedule of Rates	
40D	AquAeTer Inc.		Per Hour	110	1.0	110	Project Engineer/Scientist - 2008 Schedule of Rates	
40E	AquAeTer Inc.		Per Hour	85	1.0	85	Engineer/Scientist - 2008 Schedule of Rates	
40F	AquAeTer Inc.		Per Hour	70	1.0	70	Draftsman/Technician - 2008 Schedule of Rates	
40G	AquAeTer Inc.		Per Hour	55	1.0	55	Clerical/Admin Support - 2008 Schedule of Rates	
43A	Las Vegas Paving Corp.		S.F.	0.87	1.0	0.87	GCL on slope	
43B	Las Vegas Paving Corp.		S.F.	0.81	1.0	0.81	60-Mil HDPE Liner on slope	
43C	Las Vegas Paving Corp.		S.F.	0.68	1.0	0.68	LDS - Double-sided geocomposite on slope	
43D	Las Vegas Paving Corp.		S.F.	1.01	1.0	1.01	80-mil HDPE Liner on slope	
43E	Las Vegas Paving Corp.		S.F.	0.48	1.0	0.48	LCRS - Geonet on slope	
43F	Las Vegas Paving Corp.		S.F.	0.34	1.0	0.34	Non -woven geotextile on slope	
43G	Las Vegas Paving Corp.		S.F.	0.48	1.0	0.48	Sacrificial 30-mil geomembrane on slope	
43H	Las Vegas Paving Corp.		C.Y.	2.40	1.0	2.40	Excavation/backfill surface soil	
43I	Las Vegas Paving Corp.		C.Y.	12.00	1.0	12.00	Liner trench backfill	
45	Test America (303) 736-0100		Each	85	1.0	85.00	laboratory analysis for 8 RCRA metals in soil	
46	Test America (303) 736-0100		Each	45	1.0	45.00	laboratory analysis for TOC in soil	
47	Test America (303) 736-0100		Each	90	1.0	90.00	laboratory analysis for PCBs in soil	
48	USEN Grandview, Idaho		Ton	50	1.0	50.00	stabilization and disposal, Grandview, ID	
49	Hertz Rental Car		Day	67.99	1.0	67.99	mid-size rental car from McCarran Airport	
50	Continental Airlines		Round Trip	482.00	1.0	482.00	houston to las vegas, roundtrip	
51	Motel 6		Per Night	52.99	1.0	52.99	lodging, Beatty, NV	
52	Per Diem		Per Day	40.00	1.0	40.00	cost allowance for meals	
53	Lab Safety Supply		Each	214.00	1.0	214	north full face respirator, 7600 series	
54	Lab Safety Supply		Pkg.	10.30	1.0	10.3	respirator cartridge, organic vapor, 7BB-41584	
55	Lab Safety Supply		Pkg.	12.70	1.0	12.7	respirator cartridge, dust, fumes, mist, 7BB-44302 and 7BB-44303	
56	Lab Safety Supply		Box	25.60	1.0	25.6	shoe covers, box of 50, Tyvek	
57	Lab Safety Supply		Box	15.3	1.0	15.3	disposable nitrile n-dex gloves, box of 100	
58	Lab Safety Supply		Each	8.4	1.0	8.4	tyvek coveralls	
59	Las Vegas Paving Corp.		CY		1.0	0	backfill including excavation, hauling, placement, light compaction	
60	Las Vegas Paving Corp.		CY		1.0	0	backfill including excavation, hauling, placement, moderate compaction	
61	Las Vegas Paving Corp.		CY	2.4	1.0	2.4	backfill including excavation, hauling, placement, no compaction	

Unit Cost Basis
Beatty Facility Closure Estimate and Post Closure Estimate

Ref. No.	Line Number	Page	Unit	Cost per Unit	Cost Index	Unit Price	Description	Crew
62	USEN		CY		1.0	0	water supply for compaction	
63	D&H Mining		CY	7.22	1	7.22	Fill material delivered to USEN from local source.	
64	Category Not Used							
65	AquAeTer, Inc.		MSF	25	1.0	25	Based on use of 3 ft monolithic cover as specified in the supplement to the Landfill Report, 1998,	
65B	AquAeTer, Inc.		MSF	65	1.0	65	Design specifications for Alternative Cover - Trenches 11 and 12.	
66	32 92 19.14 5800	283	MSF	49.5	1.034	51.18	QA/QC with Compaction Testing	
67	31 22 16.10 3312	209	MSF	22.50	1.034	23.27	Hydroseeding with mulch and fertilizer (wildflower mix)	B-81
68	Layne Christensen		LF	150	1.0	150	disking final cover, assumed similar effort as fine grading on steep slopes with large quantities	B-11L

COST REFERENCE
MEANS HEAVY CONSTRUCTION COST DATA, 22ND ANNUAL EDITION, 2008